

Plant pathologist Tony Caesar is studying naturally occurring plant pathogens, which can be coupled with root-feeding insects to provide leafy spurge control.



ing data and explore promising new areas of leafy spurge research. These projects cover a wide range of topics, including biological control, multi-species grazing, herbicides, naturally occurring plant pathogens, range management, and the integration of various control tools.

Demonstration sites will be established at TEAM Leafy Spurge study areas to give ranchers, landowners and land managers a first-hand look at results produced by various IPM strategies. Tours of the demonstration sites will be periodically conducted to provide updates about improved and new leafy spurge management strategies.

Some TEAM Leafy Spurge research is being conducted by entomologists and plant pathologists. Most of this work is directed at gaining a better understanding of how and why biological control agents work. These studies will hopefully yield information that enables TEAM members to improve the effectiveness of biological control agents – in other words, it will help show how to get more bang for the bug.

TEAM Leafy Spurge research is even being conducted overseas, where entomologists are searching for new leafy spurge parasites and pathogens.

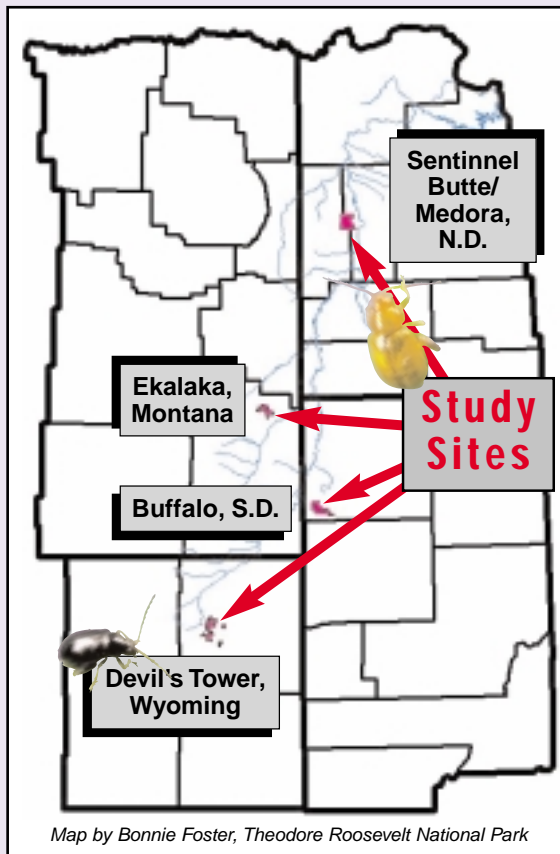
For more information. . .

On TEAM Leafy Spurge, Integrated Pest Management or biological control of leafy spurge, contact TLS coordinator Chad Prosser, USDA-ARS Northern Plains Agricultural Research Laboratory, 1500 N. Central Ave., Sidney MT 59270 (406/433-9403; e-mail: cprosser@sidney.ars.usda.gov).

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TEAM Leafy Spurge

Research & Demonstration Sites



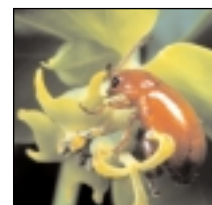
TEAM Leafy Spurge is unique in its focus on an entire region, and there couldn't have been a better region for the program. The Little Missouri River drainage offers a variety of habitats and land uses, with a good mix of private, state and federal land ownership. This combination of land types, uses and ownership gives TEAM Leafy Spurge members an opportunity to research and demonstrate Integrated Pest Management strategies in a variety of situations. It also allows TEAM Leafy Spurge to create and capitalize on partnerships between private and public entities. In short, the Little Missouri River drainage provides the perfect "lab" for TEAM members to work towards effective, affordable leafy spurge control.

the SPURGE scourge

Leafty spurge (*Euphorbia lesula*) is an exotic noxious weed that infests five million acres of land in 29 states. It causes significant problems in the northern Great Plains by invading grazing lands for cattle and horses, reducing rangeland productivity and plant diversity, degrading wildlife habitat and wildlife-associated recreation, and drastically reducing land values. Infestations in Wyoming, Montana and the Dakotas alone are estimated to cost agricultural producers and taxpayers in excess of **\$144 million a year** in production losses, control expenses and other impacts to the economy.



Leafy Spurge



Flea beetle

A native of Eurasia, where it is controlled by natural enemies, leafy spurge readily adapts to a variety of situations. It infests and, if left unchecked, can dominate landscapes ranging from open prairie and hillsides to riparian areas and lowlands. The deep-rooted perennial has doubled its acreage every 10 years since the early 1900s, and is now expanding its range beyond the northern Great Plains. The weed has proven to be a formidable opponent that cannot be eliminated or controlled by any single entity or management practice – a collaborative, integrated, area-wide approach is essential to solving this costly problem.

TTEAM Leafy Spurge is a USDA-ARS research and demonstration program focused on the Little Missouri River drainage in Wyoming, Montana and the Dakotas. Its goal is to research, develop and demonstrate ecologically based (flip to next page)



USDA-ARS Northern Plains Agricultural Research Laboratory

Integrated Pest Management strategies that landowners and land managers can use to achieve effective, affordable leafy spurge control.

TEAM Leafy Spurge is built on three important concepts:

- **Regional Approach** - TEAM stands for The Ecological Area-Wide Management, which is more than just a fancy acronym. It means that TEAM Leafy Spurge is evaluating the leafy spurge problem on a regional rather than a local, or place by place, basis. TEAM Leafy Spurge is the first USDA-ARS program designed to systematically address a regional weed pest problem.

- **Integrated Pest Management (IPM)** - IPM integrates, or combines, different management tools to provide better leafy spurge control than any single tool could produce. The foundation for this IPM approach is biological control: Biocontrol agents like the host-specific leafy spurge flea beetle are integrated with other tools – such as multi-species grazing programs, herbicides, reseeding, tillage, burning and clipping – to produce effective, affordable and ecologically sustainable leafy spurge control. IPM offers the flexibility landowners and land managers need to devise different management strategies for different situations.

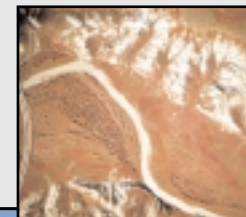
- **Teamwork** - TEAM Leafy Spurge has assembled some of the nation's most experienced leafy spurge researchers into a focused, goal-oriented team. The collaborative nature of TEAM Leafy Spurge allows its participants to share expertise, data and resources to more effectively work towards a common goal.

TEAM Leafy Spurge is funded by the USDA-Agricultural Research Service, with headquarters at the Northern Plains Agricultural Research Laboratory in Sidney, Montana. Two USDA agencies – ARS and the Animal & Plant Health Inspection Service – serve as the program's principal partners. Other TEAM members include the U.S. Forest Service, National Park Service, Bureau of Land Management, U.S. Geological Service, state departments of agriculture and other state agencies, Cooperative Extension Services, land grant universities, county weed managers, landowners and ranchers. An ad hoc committee consisting of researchers, land managers, representatives from local, state and federal entities, and private landowners/ranchers provides management and direction.

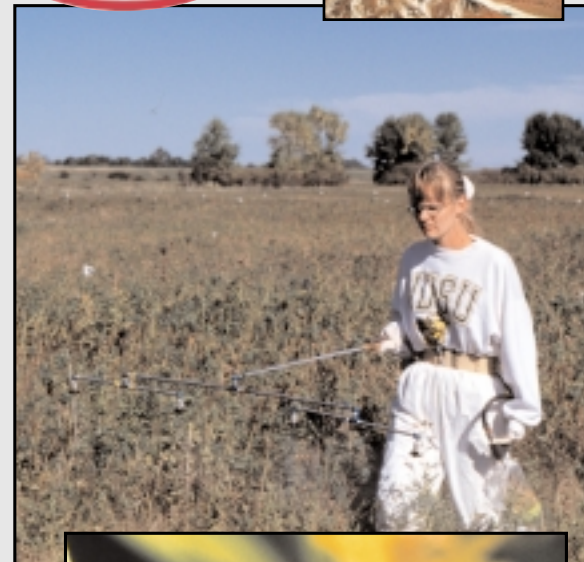
TEAM Leafy Spurge research and demonstration projects are designed to build on exist-
(see overleaf on right)



LEAFY SPURGE



TEAM Leafy Spurge (TLS) is using a variety of methods to demonstrate effective, affordable leafy spurge control strategies. *Top left* – Assessment and inventory teams monitor TLS study sites to evaluate the effectiveness of biological control agents. *Top right* – This aerial infrared photograph is one example of TLS's efforts to map spurge infestations. All of the study sites were geo-referenced so GIS and GPS technologies can be utilized. *Right* – Herbicides are the most commonly used leafy spurge management tool, and are the preferred tool for containing infestations and preventing their spread. TLS will demonstrate new herbicides and application techniques as well as ways to integrate herbicides with other IPM tools. *Lower right* – Leafy spurge flea beetles (*Aphthona spp.*) are the all-stars of leafy spurge biocontrol efforts. Biocontrol is the foundation for TLS's IPM approach to controlling leafy spurge. *Bottom right, bottom left* – A multi-species grazing study near Sentinell Butte, N.D., will demonstrate how sheep can be used in combination with cattle and other IPM tools to manage leafy spurge, improve range health and increase ranch profitability.



Bob Richard/USDA-APHIS

